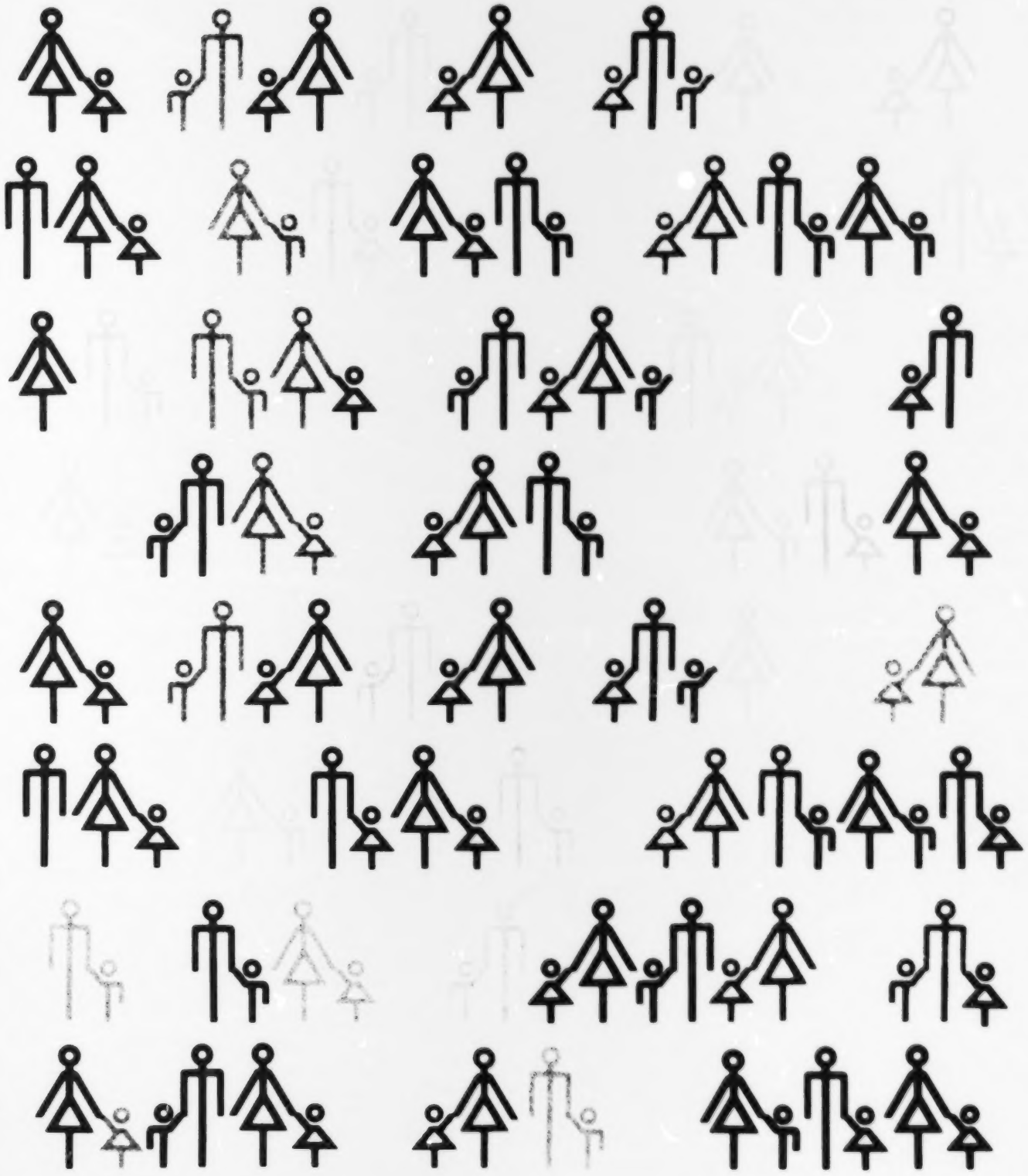
Ontario Child Health Study: Summary of Initial Findings



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Introduction

This booklet describes selected findings from the Ontario Child Health Study (OCHS), a province-wide survey of the psychiatric health of children aged four to sixteen. The study was a primary health prevention initiative, undertaken with the hope that the data would be usable for establishing prevention services.

Two sets of findings are highlighted: those relating to the frequency with which psychiatric disorders occur in different groups of children (classified by such factors as age, sex, and area of residence); and findings about the use made of health, social and educational services by children (with and without disorders).

Data from the OCHS survey conducted in 1983 are expected to be useful in a number of ways:

- Many factors are believed to increase or decrease the likelihood of a child having a disorder; data from the survey will permit an evaluation of the relative strength of association between these factors and various disorders, and can provide hypotheses for use in launching and evaluating prevention programs.

- Examining the match between the prevalence of child disorders measured in the survey and service use can provide a starting point for determining the extent to which the needs of each geographic area are met. This study, however, can not differentiate among the reasons for not using services, including whether or not they are available.

- Earlier studies in Britain and the United States have reported only a small minority of children with psychiatric disorders are diagnosed or treated; data on the characteristics of children who use or do not use services will permit an evaluation of the factors that might prevent children from receiving help. In turn, this may provide a basis for making services more accessible for children who need them.

- The information gathered on prevalence, utilization and factors associated with the disorders will help to set the priorities for clinical and research endeavours.

- The survey will lead to the development of hypotheses about the etiology, natural history and treatment of these disorders, which can be addressed by future studies.

- Baseline data will be provided on the frequency of disorders and on risk factors. These data can serve as a benchmark for researchers wishing to study the frequency of disorders and risk factors in more limited geographical areas.

- The methodology developed for this study will help other investigators in planning and implementing similar projects.

This brochure is intended as a very general overview of the OCHS research to date. Readers wishing more information on the methodology or the results of the prevalence or utilization studies, should write to:

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This brochure is based on the first five research papers from the Ontario Child Health Study, conducted by the Child Epidemiology Unit of the Department of Psychiatry of McMaster University and the Child and Family Centre of Chedoke-McMaster Hospitals, in cooperation with the Special Surveys Division of Statistics Canada.

The Epidemiology Unit of McMaster University received support from provincial lottery funds allocated to the Ontario Ministry of Community and Social Services to conduct the Child Health Survey. Additional funds for purposes of analysis were provided by the Ministry of Community and Social Services. Financial support for substudies was also provided by the National Health Research and Development Program.

Why a Survey?

Surveys of childhood disorders can serve at least two purposes. First, they can help to identify the individuals and populations with the greatest risk of impairment, so that scarce health and social service resources can be allocated rationally. Second, they can be used to assess the factors and mechanisms associated with impairment, which can provide the basis for developing and evaluating promising primary prevention and other intervention programs.

The Ontario Survey

The OCHS studied the distribution and possible causes of four childhood disorders among Ontario children aged from four to sixteen. The four disorders were: neurosis, somatization, conduct disorder, and hyperactivity.

These disorders were chosen because they occur frequently and across a wide age span, they reduce the quality of life for those experiencing them, and they consume a large share of the diagnostic and treatment resources allocated to children's mental health.

The frequency of occurrence of the four disorders was estimated for each of the four administrative regions of the Ontario Ministry of Community and Social Services: North, Southeast, Central and Southwest.

The Survey Design

The target population was all children living in Ontario who were born between January 1, 1966 and January 1, 1979. Only three groups of children, representing 3.3 percent of the population aged four to sixteen, were excluded: those living on Indian reserves, in institutions, and in dwellings constructed after June 1, 1981 (Census Day).

Population of Ontario Subdivided into the Four Administrative Regions of the Ministry of Community and Social Services

Statistics Canada selected a stratified random sample of households from the 1981 census file. The major strata were the MCSS regions, with each region further subdivided into urban (population higher than 25,000), small urban (3,000 to 25,000) and rural (less than 3,000) communities. Enough children were selected in each region to be 95 percent certain that the frequency of each disorder for each region would fall within 4 percent of the values for the population. Ninety-one percent of the households selected agreed to participate in the study, yielding a total sample of 3294 children.

Survey Instruments

The survey relied on four instruments:

Household record cards were used to screen households for eligible children.

Interviewer-administered questionnaires were used to obtain information about the health of the child, use of medical resources, and demographic characteristics.

A parent self-administered questionnaire was used to collect information on family matters, such as disciplinary practices and physical violence.

Self-report checklists were used to measure each of the disorders being studied. Separate forms were completed by parents and teachers for children aged four to eleven, and by parents and the youths themselves for those aged twelve to sixteen.

A separate study ensured the validity of the checklist measures by comparison with psychiatrists' diagnoses. To determine whether each disorder was "present" or "absent", the researchers set a cut-off mark for the checklist measures that best matched psychiatrists' diagnoses of disorder in a subsample of the survey children.

Major Aspects of the Survey

— wide age range of children assessed
— all children aged 4 to 16 in each sample household were surveyed
— large and varied geographical area
— large sample size
— disorders defined
— multiple sources of information on each child

Prevalence

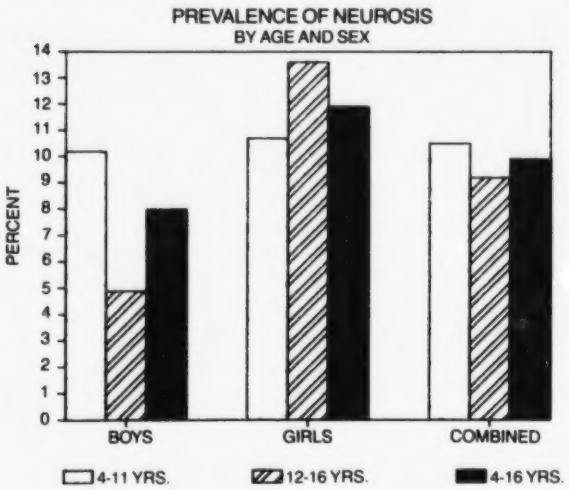
The OCHS studied prevalence — the proportion of a population with a disorder — and not incidence — the number of new disorders developing over a specified time.

Neurosis

Neurosis can be indicated by any of three criteria. The first is a "dysphoric mood," which includes such behaviours as sadness, excessive crying, thoughts of suicide, and deliberate self harm.

The second criterion is compulsive, obsessive symptoms, such as perfectionism, repetitive acts, and compulsive behaviour.

The third criterion is strong feelings of tension, nervousness, or anxiety.



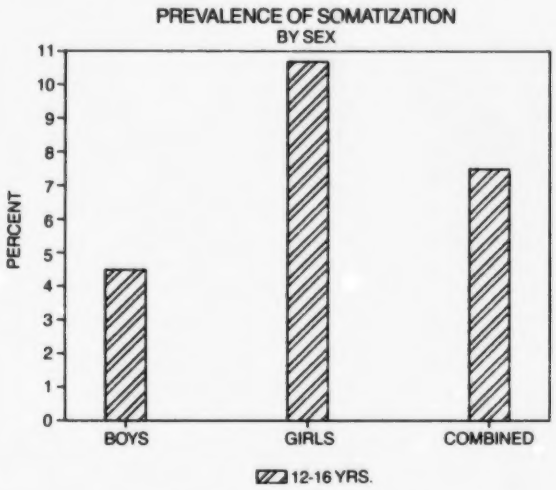
As the above figure shows, prevalence of neurosis is about the same in the younger boys and girls. It becomes less common among the boys as they age, while becoming more common among the girls. The prevalence of neurosis among the older girls is primarily due to depressive symptoms, whereas among the younger children neurosis is more typically characterized by tension. It should also be noted that, as will be seen on the next page, neurosis is more common among the younger children than is conduct disorder; this finding seems contrary to most practitioners' expectations.

Implications

These data raise more questions than they answer. Why are more adolescent girls than boys depressed? How long do the symptoms of neurosis persist? How seriously impaired are these children? Are many of the disorders short-lived?

Somatization

Two criteria must be present for a child to be considered somatic. The child must have a perception of himself or herself as generally sick, and must have distressing recurrent symptoms without any evident physical cause. These include such symptoms as constipation, headaches, nausea, rashes, and vomiting.



The figure above shows a striking difference in prevalence of somatization between adolescent boys and girls. The figure does not show data for children under the age of twelve, because the disorder in that age group was too infrequent for reliable measurement.

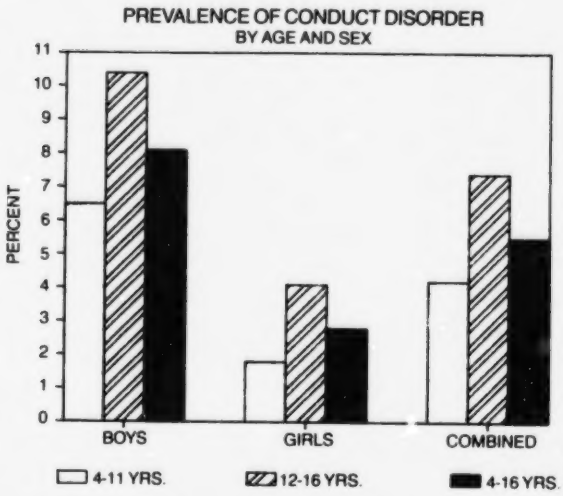
Implications

Somatization was far more common than expected. The data raise the possibility that some children who complain about physical symptoms may have no organic disease. To what extent are physical health services being used to deal with a psychological problem?

Conduct Disorder

Diagnosis of a conduct disorder requires that either or both of two criteria be fulfilled. The first criterion is a persistent pattern of physical violence, including cruelty to animals, bullying, and vandalism. The other criterion is severe violation of social norms, and can be expressed in such behaviours as truancy, stealing, running away from home, and disobedience at school.

As can be seen from the following figure, conduct disorder becomes more common as children grow older, and is more typical of boys than girls.



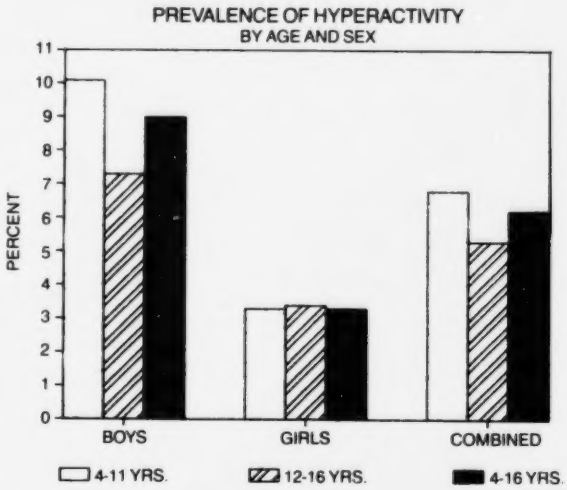
Implications

The finding that conduct disorder is more prevalent among young teenaged boys than teenaged girls suggests that this disorder might arise in some way from the socialization received by young boys. Other studies have found that more than half of the cases of serious antisocial behaviour in adulthood date back to childhood and early adolescence, and that conduct disorder is more persistent than neurosis. It is possible that the majority of adult antisocial behaviour, such as criminal activity, has its roots in early childhood.

Hyperactivity

Hyperactive children are abnormally inattentive, impulsive and restless. They typically cannot concentrate, act without thinking, and can't sit still.

As with conduct disorder, hyperactivity is more common among boys than girls. However, there is a slight tendency for hyperactivity among boys to decrease with age, as can be seen from the following figure.



Implications

Hyperactivity is a disorder that is often treated. It has been found that between 10 and 20 percent of hyperactive children have psychosocial problems as adults. It has not been shown conclusively that treatment for hyperactivity that appears to be effective in childhood alters the long-term course of the disorder.

Percentage of Disorders Identified by Various Sources

Disorder	Age	Sex	Parents Only	Teacher or Youth Only	Both Sources
Neurosis	4-11	M	50.0	47.1	2.9
	4-11	F	61.1	34.0	4.9
	12-16	M	50.0	43.1	6.9
	12-16	F	23.9	64.6	11.5
Somatization	12-16	M	34.7	60.4	4.9
	12-16	F	20.3	66.9	12.8
Conduct disorder	4-11	M	13.5	81.1	5.4
	4-11	F	19.0	81.0	0.0
	12-16	M	25.8	57.0	17.2
	12-16	F	29.5	56.6	13.9
Hyperactivity	4-11	M	10.2	77.1	12.7
	4-11	F	31.8	68.2	0.0
	12-16	M	43.3	54.1	2.6
	12-16	F	48.1	51.9	0.0

Agreement Between Sources

The frequency and type of diagnosis are strongly influenced by the source of information.

In the survey, information was gathered from parents and teachers (for ages four to eleven) or from parents and the children themselves (for ages twelve to sixteen).

The table above shows how the sources of the information about a child affected the diagnosis of that child. For example, for boys aged four to eleven diagnosed as having conduct disorder, in 13.5 percent of the cases the diagnosis was based on information from the parents, in 81.1 percent on information from the teachers, and in only 5.4 percent of cases could the diagnosis be supported by information from both the teachers and the parents. The highest level of agreement between sources was for conduct disorder among boys aged twelve to sixteen. Still, only 17.2 percent of these boys were diagnosed as having conduct disorder on the basis of information from both the parents and the youths themselves.

At the other extreme, there were no cases where a girl aged four to eleven could be diagnosed as conduct disordered or a girl four to sixteen could be diagnosed as hyperactive based on information from two sources.

These findings are consistent with research that has been reported from other countries. They raise disturbing questions about the stability of a child's behaviour in different settings, about different perceptions of the same behaviour, and about the differing expectations or demands placed on the child in different settings.

Implication

One parent's normally behaved child can be some teacher's conduct problem. However, the group of children who are diagnosed as being disturbed based on information from more than one source are likely the group most in need of service.

Overlap Among Disorders

The four disorders in the OCHS survey can be grouped as internalizing disorders (somatization and neurosis) and externalizing disorders (conduct disorder and hyperactivity). The symptoms of internalizing disorders occur within the child (anxiety, tension, etc.), while the symptoms of externalizing disorders are more behavioural (violence, truancy, etc.).

The disorders were grouped in this way to examine the overlaps among children's disorders. The largest area of overlap is within each major category of disorder; that is, children with an internalizing disorder are more likely to suffer another internalizing disorder, and children with an externalizing disorder are more likely to suffer another externalizing disorder. Although there is considerable overlap among the disorders, few children had both an internalizing disorder and an externalizing disorder.

Prevalence of Disorders by Age and Sex (Percentages)

Age	Sex	One or More Disorders	Type of Disorder: Externalizing Only	Type of Disorder: Internalizing Only	Type of Disorder: Both Externalizing and Internalizing
4-11	M	18.4	8.1	6.7	3.6
4-11	F	13.2	2.7	9.2	1.3
12-16	M	18.6	11.0	3.9	3.7
12-16	F	21.7	2.5	15.7	3.5
4-16	M	18.4	9.3	5.5	3.6
4-16	F	16.7	2.6	11.9	2.2

The above table shows how rarely children suffer from both an internalizing and an externalizing disorder.

Factors Associated with Disorder

Children in urban areas were significantly more likely to have one or more disorders than were children in rural areas.

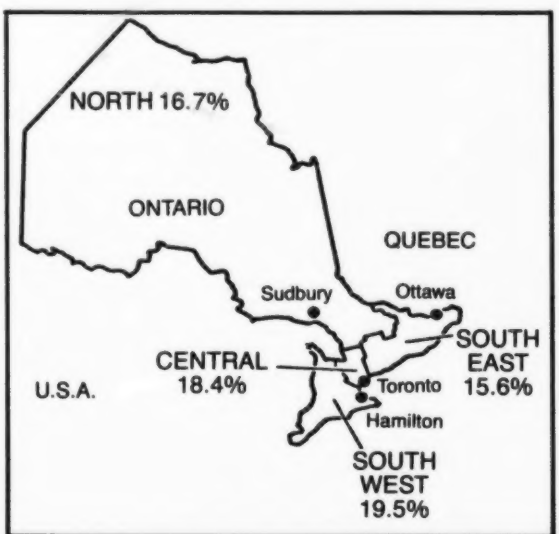
Prevalence of One or More Disorders by Area of Residence (Percentages)

Residence	Prevalence
Urban	19.6
Rural and small urban	14.9
Province overall	18.1

The map shows the prevalence of disorder by region. It is consistent with the data on urban/rural prevalence: the highest prevalences are found in the heavily urbanized Central and Southwest regions.

Social and Demographic Factors

The prevalence of disorder was compared with a large group of variables drawn from the survey data. Such factors as early development, school performance, family income, and family size were investigated.



Prevalence of Disorder in the MCSS Administrative Regions (Percentages)

The findings are summarized in the table on the next page, which lists the factors most strongly associated with disorder, and the factors found to have no statistically significant association with disorder.

Certain of the findings are somewhat unexpected. For example, two of the three strongest associations found were between disorder and the developmental variables: late age walking and late age talking. On the other hand, some variables that might be expected to be closely associated with disorder were found not to be significantly related; these included domestic violence, marital disharmony, and excessive parental drinking.

Factors Most Strongly Related with Disorder, in Order of Strength of Association[1]

	R.O.[2]
Family dysfunction	2.9
On welfare	2.8
Late age walking	2.7
Chronic functional limitation	2.7
Late age talking	2.7
Subsidized housing	2.6
Low birthweight	2.5
Chronic medical condition	2.4
Few friends	2.2
Parent ever arrested	2.1
Low income	1.7
Single parent	1.7
Age 12 to 16	1.7
Unemployed	1.6
Low participation skills	1.6
Mother's low education	1.5
Overcrowded housing	1.4
Urban residence	1.4
Parental chronic health problem	1.3
Male	1.2

Notes:

1. All of the factors are statistically significant at the 5 percent level; that is, we are at least 95 percent certain that the relative odds in the population are greater than 1.0.

2. The numbers represent relative odds. An R.O. of 2.9 between disorder and "family dysfunction" means that a child with a disorder is 2.9 times as likely to be in a family with dysfunction as a child without disorder.

Factors with No Statistically Significant Relationship with Disorder

Early separation from parents
Marital disharmony
Domestic violence
Large sibship
Parent drinking excessively

Multivariate Analysis

In addition to this analysis of variables one at a time, OCHS is conducting multivariate analyses to investigate how different variables might interact. This is done by grouping variables together. For example, "on welfare," "subsidized housing," "low income," "unemployed," "overcrowded housing," and "mother's low education" have been grouped together as "sociodemographic factors."

The findings from this multivariate analysis will be described in a subsequent booklet.

Health Status Measures

To complement the measures of psychiatric disorder, the survey asked parents about other aspects of the health of their children that might predict service use.Questions were developed to measure chronic physical health problems and disabilities. Children were classified as having a chronic health problem if their parent affirmed the presence of one or more medical conditions that are usually chronic in nature. Children were classified as having a disability if their parent reported any limitation in the activities of daily living (i.e., physical activity, mobility, self care, etc.) of more than six months' duration at the time of the survey.

Utilization of Services

As well as studying the distribution of childhood disorders in the province, the Ontario Child Health Study examined the relationship between disorder and the use of services.

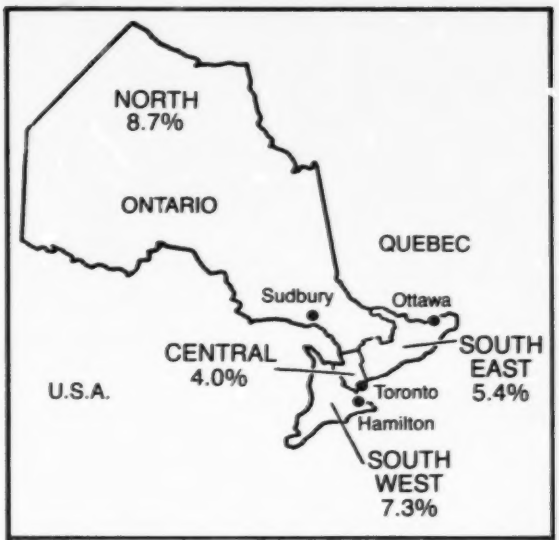
Types of Utilization

The survey examined the use (not the availability) of three different types of service:

Special school services. Parents were asked if the child had ever received remedial education (e.g. for slow learners or the emotionally disturbed).

Mental health and social services. Had the child ever been the focus of a consultation with a mental health service, a social service, or a service linked to the judiciary?

Ambulatory medical care. Was the child taken to a hospital out-patient department or clinic or hospital emergency room, or to a physician's office, in the previous six months?



Utilization of Mental Health and Social Services in the MCSS Administrative Regions (Percentages)

Utilization Rates of Three Types of Service by Age and Sex (Percentages)

Category	Girls 4-11	Girls 12-16	Boys 4-11	Boys 12-16	Overall
Special school services	9	12	22	21	16
Mental health and social services	5	5	7	8	6
Ambulatory medical care	66	50	60	52	58

The above table shows the rates of utilization for each type of service, broken down by age and sex. The major difference revealed by the table is the much higher rate of use of special education services by boys.

The map shows the percentage of children in each region who used mental health, social or correctional services in the last six months. The percentage of children using the services is much less than the prevalence of disorder shown on the map on page 7. For example, the North has the highest rate of utilization (8.7 percent), but this is still only about half of that region's prevalence rate (16.6 percent), which suggests that at best services are used by only one out of every two children who may need them.

There were no clear regional patterns in the utilization of special school services or ambulatory medical care.

The discrepancy in each region between utilization of mental health and social services and prevalence of disorder indicates that treatment has not been provided to the majority of children with emotional or behavioural problems. The true extent of the discrepancy between the need for services and their utilization is difficult to judge. On the one hand, some children identified as having disorders may not require treatment because the disorders themselves are transient and will clear up without help. On the other hand, there are children with disorders for whom treatment is ineffective and would be a misuse of resources.

Components of Service Utilization: Rates per 1,000 Children[1]

Special School Services

Service	Full time	Part time
Perceptual handicaps	4	9
Developmental handicaps	4	1
Emotional or behavioural disturbance	3	6
Slow learners	22	34
Other remedial education	8	94

Mental Health and Social Services

Service	Utilization rate
Mental health clinics	*
Private practitioners	18
Children's aid societies	14
Family service agencies	7
Courts	7
Probation/Aftercare	2
Other	28

Ambulatory Medical Services

Emergency room	150
Physician's office	544
Hospital outpatient department	41

Notes:

[1] Service use in past six months for mental health, social and ambulatory medical services; and use of services at any time for school services.

* Too low to be estimated.

Utilization Rates

This table shows the components of each of the services studied, and the utilization rate per 1,000 children for each component.

Special school services help slow learners, the developmentally handicapped, and the perceptually handicapped, as well as providing other remedial services. Sixteen percent of children had received one or more of these services in their school careers.

Very few children — only eight children per thousand — received special school services for emotional or behavioural problems. Rather, the bulk of special school services were for intellectually slower children.

Utilization rates during the previous six months were very low for mental health, correctional, and social services. Because of this, these services were combined to examine correlates of mental health and social service utilization.

Visits to a doctor are the most common form of ambulatory medical care, regardless of age, sex, or region. Nearly 60 percent of the children had seen a doctor in his or her office, about 15 percent had attended an emergency room, and fewer than 5 percent had been to a hospital outpatient clinic.

Factors Associated with Utilization

The same variables that had been compared with prevalence were also compared with utilization rates. The table on the next page lists the major variables and their correlations with utilization of each of the three types of service.

Earlier British and U.S. studies have found that the factor most closely related to service use was the parents' perceived need for that service.

The OCHS survey revealed that the parent's perception of the child's poor mental health was the key to the child having a mental health service or social service contact. Special education services were most likely to be provided to children with a functional limitation and those who had had problems in early development. Ambulatory medical care was most closely related to chronic health problems.

Other utilization patterns were not related to perceived need. Younger children were more likely to have seen a doctor in the previous six months than were older children. Boys were almost twice as likely to have used special education services than were girls. Children with an internalizing disorder were more likely than those with an externalizing disorder to have been seen by a social, medical or mental health service.

Children living in urban areas were significantly more likely than those in a small urban or rural setting to have used ambulatory medical care or a special education service. Children from single-parent families were more than twice as likely to have been seen by a social or mental health service than were children from two-parent families.

As with the data on prevalence, multivariate studies of these utilization data are presently being conducted; it is intended to report these findings in a subsequent brochure.

Correlates of Utilization of Three Types of Services by Ontario's Children

Variable	Type of Service		
	Ambulatory Medical Care % use	Mental Health/ Social Services % use	Special Education % use
Age 4-11	64.1*	6.1	15.8
Age 12-16	49.4	6.9	17.0
Male	57.7	7.1	21.4*
Female	58.1	5.8	11.3
Urban	61.8*	6.1	18.0*
Rural and small urban	51.2	7.0	13.6
Poor physical health	68.3*	8.9	19.8
Good physical health	55.1	5.9	15.7
Chronic medical problem	68.9*	13.6*	26.6*
No chronic medical problem	55.5	4.9	13.2
Chronic functional problem	75.0*	20.2*	45.8*
No chronic functional problem	57.0	5.7	14.5
More mental health problems (parental perception)	70.1*	33.8*	40.6*
Same as other children (parental perception)	57.3	5.2	15.3
Externalizing disorder	54.8	15.6*	31.4*
No externalizing disorder	57.2	5.8	14.0
Internalizing disorder	69.7*	22.9*	22.4
No internalizing disorder	55.8	5.3	15.0
Early development problem	61.8	9.9	34.8*
No early development problems	58.4	5.8	15.0
Single-parent family	56.1	13.7*	20.0
Two-parent family	58.1	5.5	15.9
Poor family functioning	52.8	7.2	18.7
Good family functioning	59.1	5.4	15.8
No socioeconomic problems	60.5	5.2	14.3*
1-2 socioeconomic problems	55.6	6.4	18.1
3 + socioeconomic problems	55.1	16.9*	23.8

NOTE: * These differences in percentage are statistically significant at the 5 percent level.

Conclusion and Future Directions

It is particularly important to identify those groups that are at high risk for disorder, to find ways of reducing that risk, and to ensure that the needs of high-risk groups are met.

The finding that perceived need is the major factor in service utilization is neither new nor surprising. But we do not know from these results why there is a low rate of using specialized services. The reasons could include factors such as parents not perceiving a problem, parents who perceive a problem not being willing to use services, and services not being available or accessible. Our knowledge is limited about the factors that contribute to service use, about the effectiveness of these services, and about what proportion of these disorders is transitory. We must be cautious, then, in concluding that increasing the availability of services will reduce significantly the burden of suffering for these children and their families.

The study found that children with physical health problems were fairly well served by outpatient health services. As well, over 70 percent of children with mental health problems *identified by their parents* were seen by a physician in the past six months. Fifty-eight percent of the children in Ontario visited a physician in that same time period.

Ontario's schools play a major role in the delivery of services to children with special needs. The data suggest that the school services are geared more to helping those with physical or developmental disabilities than in providing for the needs of children with emotional problems.

Only a small minority of children with psychiatric disturbances are now being helped by Ontario's mental health and social service system. These children are more often seen by the family doctor or by the school system, although a substantial proportion go unrecognized and untreated. A system that aims at wide coverage of children with emotional disorders should include ambulatory medical care and the schools in the delivery of services.

Finally, these results support an emphasis on primary prevention. The high prevalence of these disorders and the difficulties inherent in providing effective treatment on a case-by-case basis suggest that we should continue to follow promising leads in prevention of children's emotional problems.